



MUSCLE SHOALS
MINERALS INC.

A MEMBER OF THE UCM GROUP OF COMPANIES

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CERTIFICATE OF ANALYSIS

PRODUCT: ZY-7 -25+5u

LOT: 31-1-3

DATE: 01/31/2003

ANALYSIS

SIEVE ANALYSIS (% Retained)

MICROTRAC (Microns/% Finer)

176	100.0
125	100.0
88	100.0
62	99.9
44	97.6
31	83.4
22	56.5
16	26.3
11	9.5
7.8	5.5
5.5	3.5
10% Finer Than (Microns)	11.1
50% Finer Than (Microns)	20.4
90% Finer Than (Microns)	35.1
Surface Area	0.3

CHEMICAL ANALYSIS (wt.%)

Al2O3	0.320
SiO2	0.030
TiO2	0.050
CaO	0.100
MgO	0.020
Fe2O3	0.070
Y2O3	7.470
HfO2	1.820
ZrO2	90.120
Organic Solids	0.000
TAO	0.000

B. Combs
QUALITY CONTROL

EXHIBIT 1

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